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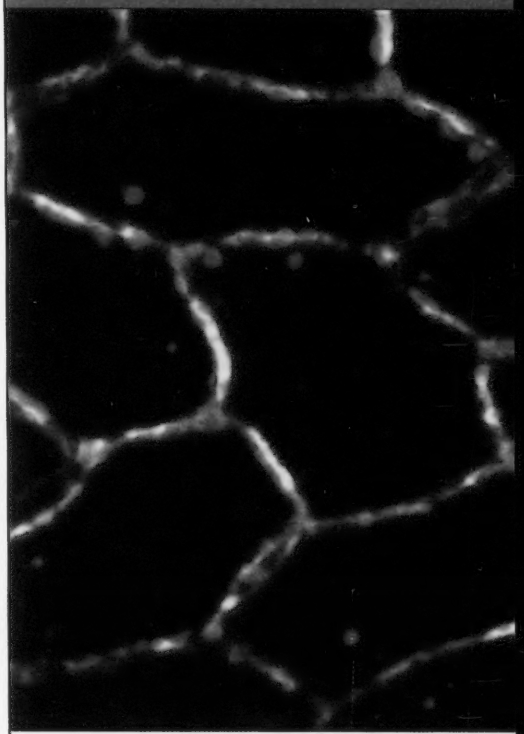

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The apical cue Bazooka (red) establishes cell polarity before cadherin (blue) forms adherens junctions.
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75 Sec1p directly stimulates SNARE-mediated membrane fusion in vitro
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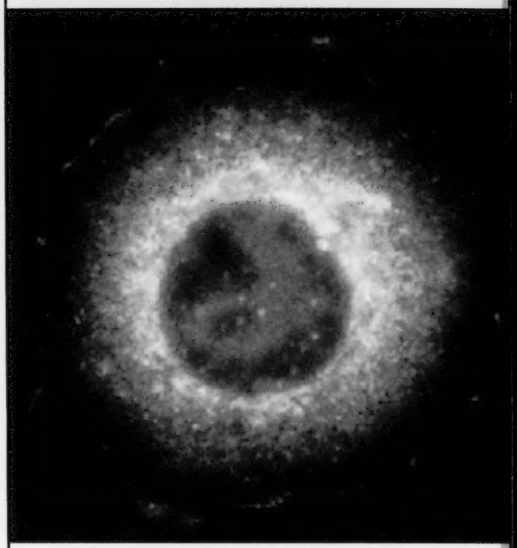

Rap1 induces cell spreading by localizing Rac GEFs such as VAV2 (green) to membrane protrusions.
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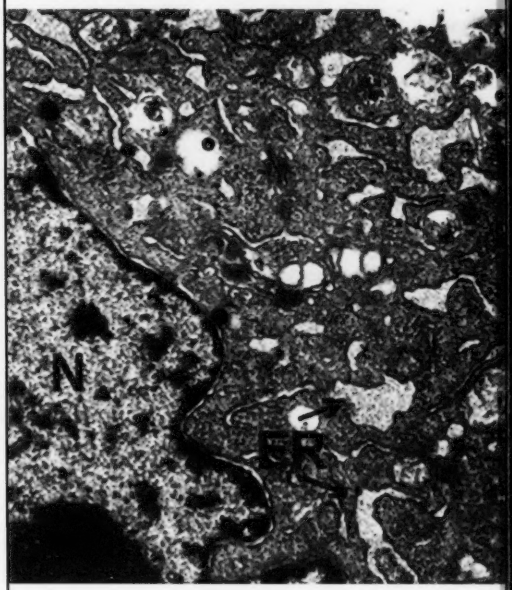

The ER expands in response to the UPR via XBP1, which activates ER phospholipid synthesis.
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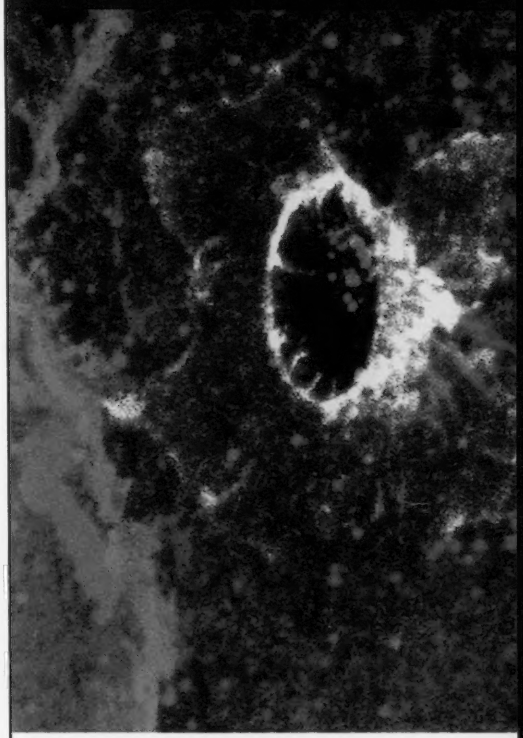

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Leukocytes (red) can avoid intercellular junctions (blue) and pass through individual endothelial cells (green) via a cup-like structure.
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257 Interaction of Brn3a and HIPK2 mediates transcriptional repression of sensory neuron survival
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377 A transmigratory cup in leukocyte diapedesis both through individual vascular endothelial cells and between them
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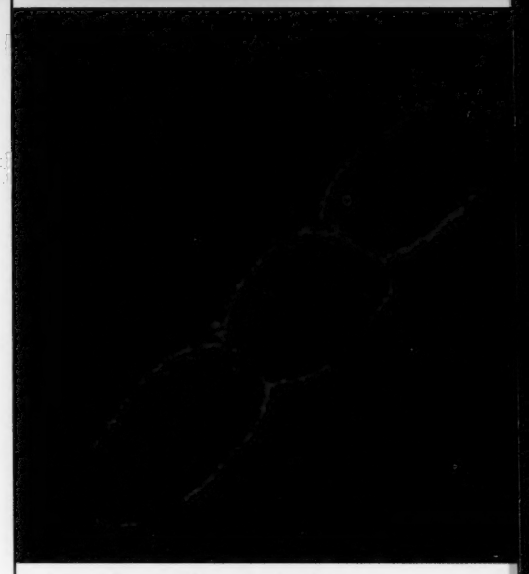

Among human telomeres, the 4q subtelomere (red) uniquely associates with peripheral heterochromatin at the nuclear envelope (green).
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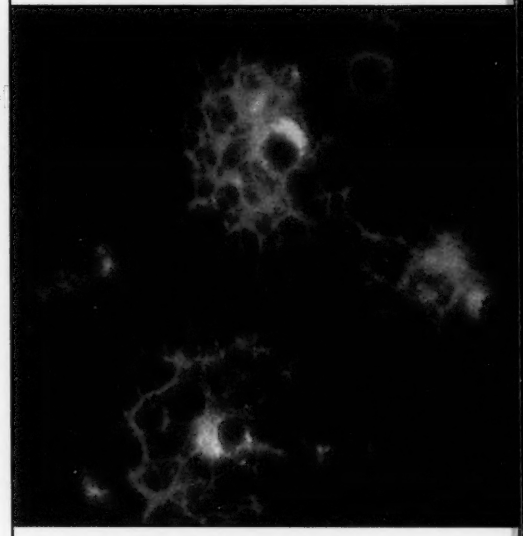

Fyn (red) is activated by α6β1 integrin (green) to promote oligodendrocyte survival and differentiation.
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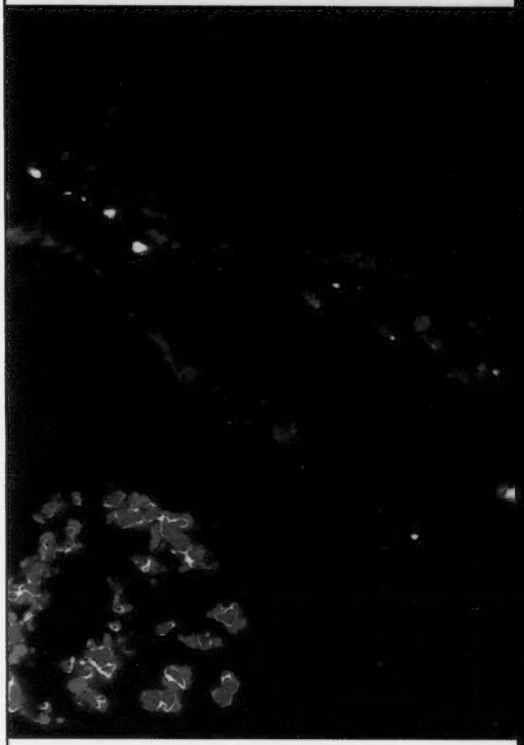

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Upon activation (bottom cell), the ERBB4 receptor tyrosine kinase (green) brings STAT5A (red) to the nucleus, where the two bind as a complex to DNA (blue).
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469 The ERBB4/HER4 receptor tyrosine kinase regulates gene expression by functioning as a STAT5A nuclear chaperone
C.C. Williams, J.G. Allison, G.A. Vidal, M.E. Burow, B.S. Beckman, L. Marrero, and F.E. Jones

479 The death receptor antagonist FAIM promotes neurite outgrowth by a mechanism that depends on ERK and NF-κB signaling
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531 Recycling endosomes can serve as intermediates during transport from the Golgi to the plasma membrane of MDCK cells
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555 Protein kinase C spatially and temporally regulates gap junctional communication during human wound repair via phosphorylation of connexin43 on serine368
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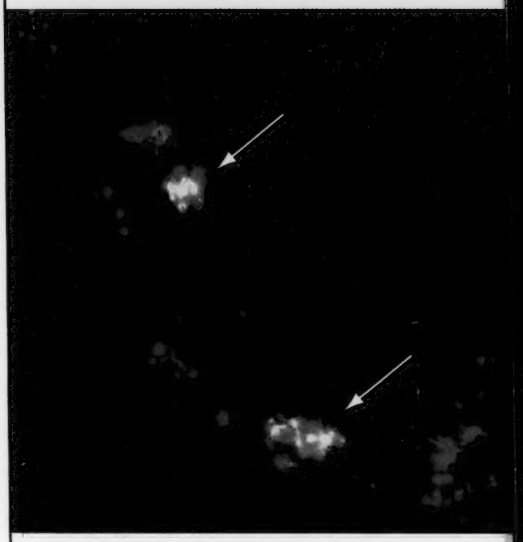
565 Correction
567 Correction



Polarized membrane proteins such as the basolateral protein VSV-G (green) pass through recycling endosomes (red) during sorting.
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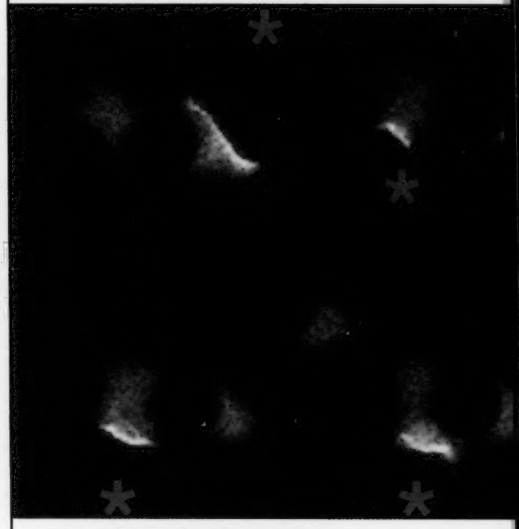

Activated Ras (white) turns on PI3K at the leading edge (towards asterisks) of chemotaxing cells.
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- Making a raft with oligomers

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591 Structural and functional analysis of Nup133 domains reveals modular building blocks of the nuclear pore complex
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599 Pex7p translocates in and out of peroxisomes in *Saccharomyces cerevisiae*
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605 Mlp-dependent anchorage and stabilization of a desumoylating enzyme is required to prevent clonal lethality
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A. Anyanful, K. Ono, R.C. Johnsen, H. Ly, V. Jensen, D.L. Baillie, and S. Ono

649 Ubiquitin charging of human class III ubiquitin-conjugating enzymes triggers their nuclear import
S.M. Plafker, K.S. Plafker, A.M. Weissman, and I.G. Macara

661 Control of mitochondrial motility and distribution by the calcium signal: a homeostatic circuit
M. Yi, D. Weaver, and G. Hajnóczky

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The metalloprotease invadolysin (green) moves to the leading edge to help cell migration. Invadolysin is also needed for mitotic progression.
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673 Invadolysin: a novel, conserved metalloprotease links mitotic structural rearrangements with cell migration
B. McHugh, S.A. Krause, B. Yu, A.-M. Deans, S. Heasman, P. McLaughlin, and M.M.S. Heck

687 Phosphorylation of DCC by Fyn mediates Netrin-1 signaling in growth cone guidance
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699 Protein oligomerization modulates raft partitioning and apical sorting of GPI-anchored proteins
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711 Disruption of *Mtmr2* produces CMT4B1-like neuropathy with myelin outfolding and impaired spermatogenesis
A. Bolino, A. Bolis, S.C. Previtali, G. Dina, S. Bussini, G. Dati, S. Amadio, U. Del Carro, D.D. Mruk, M.L. Feltri, C.Y. Cheng, A. Quattrini, and L. Wrabetz

723 Selective apoptosis of pluripotent mouse and human stem cells by novel ceramide analogues prevents teratoma formation and enriches for neural precursors in ES cell–derived neural transplants
E. Bieberich, J. Silva, G. Wang, K. Krishnamurthy, and B.G. Condie

735 SPOTS: signaling protein oligomeric transduction structures are early mediators of death receptor–induced apoptosis at the plasma membrane
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757 MT1-MMP–dependent neovessel formation within the confines of the three-dimensional extracellular matrix
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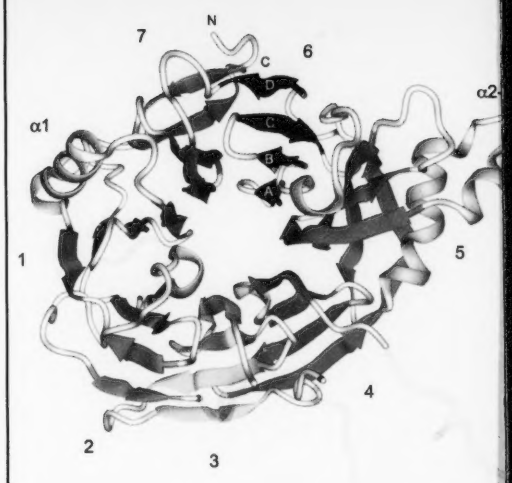
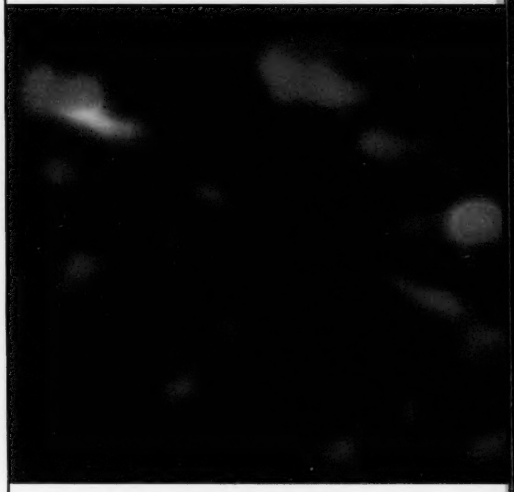
783 Retraction
785 Retraction



Nup133 contains a 7-bladed β-propeller that is also predicted to occur in 30% of all nucleoporins.
See page 591.



Chromosome compaction after meiotic recombination is lost when condensin is missing.
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THE JOURNAL OF CELL BIOLOGY
VOL. 167, NO. 5, DECEMBER 6, 2004

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841 DNA replication checkpoint control of Wee1 stability by vertebrate Hsl7
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851 Contrasting nuclear dynamics of the caspase-activated DNase (CAD) in dividing and apoptotic cells
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863 Phosphate deprivation induces transfer of DGDG galactolipid from chloroplast to mitochondria
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875 Functional specialization within a vesicle tethering complex: bypass of a subset of exocyst deletion mutants by Sec1p or Sec4p
A. Wiederkehr, J.-O. De Craene, S. Ferro-Novick, and P. Novick

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The telomere-associated protein hRif1 (red) is found on anaphase spindle microtubules (green).
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889 Vesicles carry most exocyst subunits to exocytic sites marked by the remaining two subunits, Sec3p and Exo70p
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901 HIV-1 Nef disrupts MHC-I trafficking by recruiting AP-1 to the MHC-I cytoplasmic tail
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915 Nontranscriptional modulation of intracellular Ca^{2+} signaling by ligand stimulated thyroid hormone receptor
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925 Terminal osteoblast differentiation, mediated by runx2 and $p27^{KIP1}$, is disrupted in osteosarcoma
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935 Progenitor cells of the testosterone-producing Leydig cells revealed
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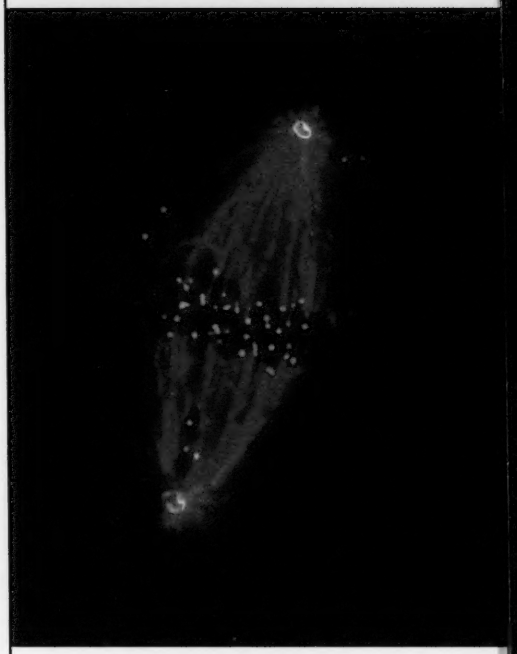
945 The neuronal scaffold protein Shank3 mediates signaling and biological function of the receptor tyrosine kinase Ret in epithelial cells
G. Schuetz, M. Rosário, J. Grimm, T.M. Boeckers, E.D. Gundelfinger, and W. Birchmeier

953 Neuronal membrane cholesterol loss enhances amyloid peptide generation
J. Abad-Rodriguez, M.D. Ledesma, K. Craessaerts, S. Perga, M. Medina, A. Delacourte, C. Dingwall, B. De Strooper, and C.G. Dotti

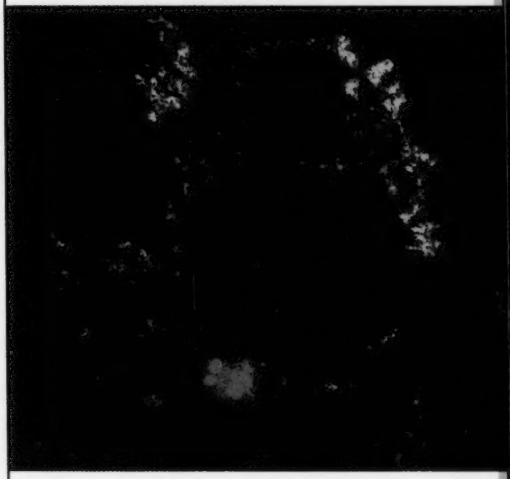
961 Cadherin activity is required for activity-induced spine remodeling
K. Okamura, H. Tanaka, Y. Yagita, Y. Saeki, A. Taguchi, Y. Hiraoka, L.-H. Zeng, D.R Colman, and N. Miki

973 Ameloblastin is a cell adhesion molecule required for maintaining the differentiation state of ameloblasts
S. Fukumoto, T. Kiba, B. Hall, N. Iehara, T. Nakamura, G. Longenecker, P.H. Krebsbach, A. Nanci, A.B. Kulkarni, and Y. Yamada

985 Correction



Kinetochores (orange) can drive the formation of spindle fibers during mitosis, as seen by kinetochore fibers that are not connected to either pole (magenta).
See page 831.



Mitochondria (blue) in phosphate-starved plant cells replace phospholipids with glycolipids (green) that are transferred directly from chloroplasts.
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1005 Critical role of PIP5KIγ87 in $InsP_3$-mediated Ca^{2+} signaling
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1011 Processive capping by formin suggests a force-driven mechanism of actin polymerization
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1019 The integrin effector PINCH regulates JNK activity and epithelial migration in concert with Ras suppressor 1
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1025 Developmentally regulated alterations in Polycomb repressive complex 1 proteins on the inactive X chromosome
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1037 The spindle assembly checkpoint is not essential for CSF arrest of mouse oocytes
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1051 Energy- and temperature-dependent transport of integral proteins to the inner nuclear membrane via the nuclear pore
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1063 Nuclear translocation of an ICA512 cytosolic fragment couples granule exocytosis and insulin expression in β-cells
M. Trajkovski, H. Mziaut, A. Altkrüger, J. Ouwendijk, K.-P. Knoch, S. Müller, and M. Solimena

1075 A foldable CFTRΔF508 biogenic intermediate accumulates upon inhibition of the Hsc70–CHIP E3 ubiquitin ligase
J.M. Younger, H.-Y. Ren, L. Chen, C.-Y. Fan, A. Fields, C. Patterson, and D.M. Cyr

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PINCH (green) colocalizes (white) with phosphotyrosine (purple) during *Drosophila* dorsal closure. This is part of the evidence that it links integrin-mediated adhesion and intracellular signaling by JNK during migration events.
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1087 Interdependent assembly of specific regulatory lipids and membrane fusion proteins into the vertex ring domain of docked vacuoles
R.A. Fratti, Y. Jun, A.J. Merz, N. Margolis, and W. Wickner

1099 Quantitative mass spectrometry reveals a role for the GTPase Rho1p in actin organization on the peroxisome membrane
M. Marelli, J.J. Smith, S. Jung, E. Yi, A.I. Nesvizhskii, R.H. Christmas, R.A. Saleem, Y.Y.C. Tam, A. Fagarasanu, D.R. Goodlett, R. Aebersold, R.A. Rachubinski, and J.D. Aitchison

1113 The interplay of osteogenesis and hematopoiesis: expression of a constitutively active PTH/PTHrP receptor in osteogenic cells perturbs the establishment of hematopoiesis in bone and of skeletal stem cells in the bone marrow
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1123 The diabetes-linked transcription factor PAX4 promotes β-cell proliferation and survival in rat and human islets
T. Brun, I. Franklin, L. St-Onge, A. Biason-Lauber, E.J. Schoenle, C.B. Wollheim, and B.R. Gauthier

1137 Domains controlling cell polarity and proliferation in the *Drosophila* tumor suppressor Scribble
J. Zeitler, C.P. Hsu, H. Dionne, and D. Bilder

1147 Muscle ring finger protein-1 inhibits PKCε activation and prevents cardiomyocyte hypertrophy
R. Arya, V. Kedar, J.R. Hwang, H. McDonough, H.-H. Li, J. Taylor, and C. Patterson

1161 Persistence of apoptotic cells without autoimmune disease or inflammation in $CD14^{-/-}$ mice
A. Devitt, K.G. Parker, C.A. Ogden, C. Oldreive, M.F. Clay, L.A. Melville, C.O. Bellamy, A. Lacy-Hulbert, S.C. Gangloff, S.M. Goyert, and C.D. Gregory

1171 TSC2 modulates actin cytoskeleton and focal adhesion through TSC1-binding domain and the Rac1 GTPase
E. Goncharova, D. Goncharov, D. Noonan, and V.P. Krymskaya

1183 Force measurements in E-cadherin–mediated cell doublets reveal rapid adhesion strengthened by actin cytoskeleton remodeling through Rac and Cdc42
Y.-S. Chu, W.A. Thomas, O. Eder, F. Pincet, E. Perez, J.P. Thiery, and S. Dufour

1195 Roles of uroplakins in plaque formation, umbrella cell enlargement, and urinary tract diseases
X.-T. Kong, F.-M. Deng, P. Hu, F.-X. Liang, G. Zhou, A.B. Auerbach, N. Genieser, P.K. Nelson, E.S. Robbins, E. Shapiro, B. Kachar, and T.-T. Sun

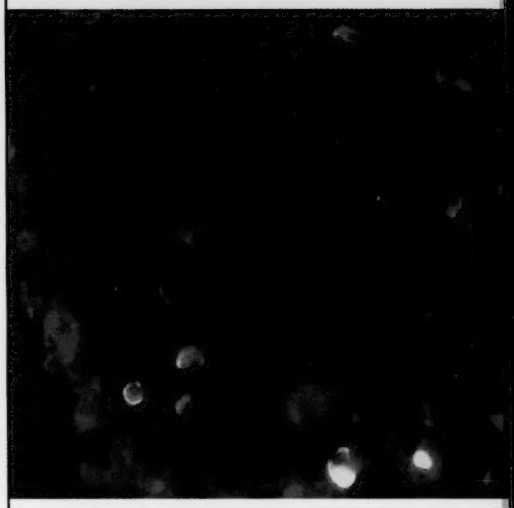
1205 BDNF-induced recruitment of TrkB receptor into neuronal lipid rafts: roles in synaptic modulation
S. Suzuki, T. Numakawa, K. Shimazu, H. Koshimizu, T. Hara, H. Hatanaka, L. Mei, B. Lu, M. Kojima

1217 The adhesion force of Notch with Delta and the rate of Notch signaling
F. Ahimou, L.-P. Mok, B. Bardot, and C. Wesley

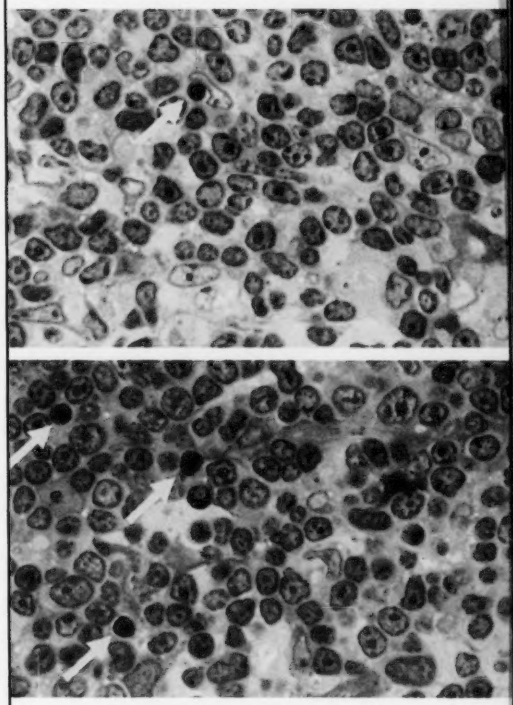
1231 Palmitoylation supports assembly and function of integrin–tetraspanin complexes
X. Yang, O.V. Kovalenko, W. Tang, C. Claas, C.S. Stipp, and M.E. Hemler

1241 The primacy of affinity over clustering in regulation of adhesiveness of the integrin $\alpha_L\beta_2$
M. Kim, C.V. Carman, W. Yang, A. Salas, and T.A. Springer

1255 Correction



Rat islets of Langerhans overexpressing Pax4 show increased proliferation of β-cells (yellow; coincidence of insulin [red] and BrdU [green]).
See page 1123.



Without CD14 (bottom), apoptotic cells are not cleared (arrows), but they do not recruit other inflammatory cells.
See page 1161.